



News Release

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UZH Spearheads Largest European Study on Aging

DO-HEALTH, Europe's largest study on aging, is researching ways to improve the health of adults age 70 and older. Led by Heike Bischoff-Ferrari, Professor of Geriatric Medicine and Aging Research at the University of Zurich, the study involves 2157 participants from five European countries – and bestselling author Donna Leon as DO-HEALTH ambassador.

What began in 2012 is now entering its final stages: Europe's largest study on aging. The international research network behind the DO-HEALTH study is led by Heike Bischoff-Ferrari, Professor of Geriatric Medicine and Aging Research at the University of Zurich, and Head of the Department of Geriatrics at the University Hospital Zurich and the Waid City Hospital in Zurich, Switzerland. A total of 2157 men and women age 70 years and older participate in the study and were recruited from 7 University Centers in 5 European countries: 552 from Zurich, 253 from Basel, 201 from Geneva, 350 from Berlin, 200 from Innsbruck, 300 from Toulouse, and 301 from Coimbra.

Extension of Healthy Life Expectancy through Three Simple Interventions

Over the course of the three-year clinical trial, the DO-HEALTH study requires participants to complete a simple home exercise program three times a week and to take regular supplements of vitamin D and/or Omega-3 fatty acids and/or placebo. The data collected will be analyzed to determine the effects of the three interventions on five primary outcomes: fracture risk, lower extremity muscle function, cognitive function, blood pressure, and rate of infections.

Mechanistic studies, large observational studies, and small clinical trials conducted to date suggest that all three interventions may have a protective effect on various organ functions. "If DO-HEALTH can show that one or all three of these affordable and well-tolerated interventions are effective, this would have an enormous public health impact by enabling senior adults to live a longer healthy and active life," says Bischoff-Ferrari.

Establishment of an Extensive Biobank

The data collection phase of the study is nearing completion, and 100 percent of the four one-day study-visits of all 2157 participants will be concluded by the end of November this year. Final results on the effects of the interventions individually and in combination will be available in mid-2018. Throughout the study, the Centre on Aging and Mobility at the University of Zurich has also built up a biobank of more than 200,000 blood samples to support future research on healthy aging. "Detailed information on many key organ functions coupled with data on nutrition, levels of physical activity, and quality of life is of enormous value for better health and optimal medical care of senior adults," Bischoff-Ferrari explains.

42 Percent of All Participants are Healthy Agers

Data from the first DO-HEALTH clinical visit at study entry show that 42 percent of all DO-HEALTH participants are "healthy agers" – seniors who have no chronic illnesses and enjoy good physical and mental health. However, the percent of healthy agers at the start of DO-HEALTH varies between the



five countries: in Switzerland (Zurich, Basel, Geneva), 51 percent are healthy agers, in Germany (Berlin) 38 percent, in Austria (Innsbruck) 58 percent, in France (Toulouse) 37 percent, and in Portugal (Coimbra) 9 percent. DO-HEALTH aims to increase the healthy life expectancy of study participants with the three interventions and to enable future generations to benefit from DO-HEALTH findings so that they can live healthy and active longer.

Correct Dosage of Vitamin D

Previous studies suggest that life expectancy among people with a vitamin D deficiency is lower compared to those with replete vitamin D levels. Furthermore, the results of preliminary studies indicate that vitamin D – transmitted by a specific receptor – has a direct, positive effect on muscle strength and function. For optimal translation of this benefit into fall prevention, it is essential that the dose of vitamin D is right, as excess doses may reverse the protective effect. “Based on a preliminary study by DO-HEALTH, we have, for the first time, an indication that there is a therapeutic range for vitamin D: not too little, and not too much,” says Bischoff-Ferrari.

Recording Overall Health of Senior Citizens

A unique strength of the DO-HEALTH study is its detailed and repeated comprehensive assessment of overall health and multiple individual organ functions of the participants, including data on all key parameters of bone and muscle health. These data can then be assessed in relation to fall and fracture risk, but also memory function, reaction time, and other co-morbidities. The DO-HEALTH study will also evaluate if and to what extent the three interventions influence health care utilization, such as doctor consultations, physiotherapy, and hospital admission. Moreover, the study results will provide data on differences in health, quality of life, and functional states among senior adults throughout Europe.

Ambassador: Crime Author Donna Leon

Author Donna Leon, who lives in Venice and Zurich, is personally committed to the project. The creator of the bestselling “Commissario Brunetti” series supports the DO-HEALTH study as an ambassador for the program. In this role, Donna Leon will write to the study participants to express her appreciation for their significant contribution to the health and medical care of senior adults. She will also support the principal investigator in the communication of DO-HEALTH findings to the public.

DO-HEALTH

DO-HEALTH (VitaminD3-Omega3-Home Exercise-Healthy Ageing and Longevity Trial) is Europe’s largest study on the topic of healthy aging. DO-HEALTH is coordinated by the Center for Aging and Mobility at the University of Zurich and the University Hospital Zurich; the Principal Investigator of the Study is Prof. Heike A. Bischoff-Ferrari, MD, DrPH who is the Chair of Geriatric Medicine and Aging Research at the University of Zurich, and Director of the Centre on Aging and Mobility at the University of Zurich, University Hospital Zurich and the Waid City Hospital in Zurich, Switzerland.

DO-HEALTH trial centers have been established at seven partner universities in five European countries: Switzerland (Zurich, Basel, Geneva), France (Université de Toulouse), Germany (Charité, Berlin), Austria (University of Innsbruck), and Portugal (University of Coimbra). Additional partners of DO-HEALTH include 5 universities (Max-Rubner Institut Karlsruhe, Technische



Universität Dresden, University of Manchester, University of Sheffield, and UMIT Austria, one impact partner (IOF International Osteoporosis Foundation), five industry partners (Nestlé, DSM Nutrition, Roche Diagnostics, Pfizer, Streuli), two logistics partners (ACIES, Pharmalys), and two technology innovation partners (Gut Pictures, FDS Software).

The study is investigating whether and to what extent supplementation of vitamin D (2000 IU/day) and/or Omega-3 fatty acids (1 gram/day) and/or a simple home-exercise program can increase healthy life expectancy. Primary endpoints of the study are fracture risk, cognitive function, blood pressure, lower extremity function, and rate of infection. Further key endpoints include rate of falls, joint health (osteoarthritis), sarcopenia, frailty, oral and dental health, glucose metabolism and diabetes, major cardiovascular events, maintenance of autonomy, and quality of life.

The budget of DO-HEALTH is EUR 17.6 million; DO-HEALTH was primarily funded under the European Commission Research Framework 7 program (EUR 6 million). The University of Zurich has contributed EUR 4.7 million via the Chair for Geriatric Medicine and Aging Research.

<http://do-health.eu>

Preliminary Studies on Vitamin D Dosage:

Bischoff-Ferrari HA, Dawson-Hughes B, Orav EJ, Staehelin HB, Meyer OW, Theiler R, et al. Monthly High-Dose Vitamin D Treatment for the Prevention of Functional Decline: A Randomized Clinical Trial. *JAMA internal medicine*. 2016;176(2):175-83.

Bischoff-Ferrari HA, Dawson-Hughes B, Platz A, Orav EJ, Stähelin HB, Willett WC, et al. Effect of high-dosage cholecalciferol and extended physiotherapy on complications after hip fracture: a randomized controlled trial. *Arch Intern Med*. May 10, 2010;170(9):813-20

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